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ABSTRACT

This paper traces the development and maintenance of an introductory workshop delivered over the Internet, called the ALN (Asynchronous Learning Networks) Workshop on Internet Basics held at the Vanderbilt University Center for Innovation in Engineering Education (CIEE). The first section discusses creation and implementation issues, including software used, target audience, and course content. World Wide Web site design issues are addressed in the second section, including consistency in fonts, colors, and backgrounds, maximizing readability and minimizing download time, and presenting interactive examples. Data on usage are presented in the next section, including numbers of visitors, numbers of countries that visited the site, and most popular pages. The fourth section summarizes feedback obtained on the Internet Software Tutorials, including questions asked on the feedback form, sample comments, suggestions for improvement, and occupations of workshop users; most of the feedback focused on the Eudora e-mail tutorial. Modification, including addition of new tutorials and revision of incorrect/unclear information, is discussed in the fifth section. The final sections consider future plans and conclusions. A figure illustrates the FTP (file transfer protocol) tutorial screen. (AEF)

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Creating a Workshop on the World Wide Web: The Experiences of Internet 101

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TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

Abstract: This document traces the development and maintenance of an introductory workshop delivered over the Internet. Topics included using the Internet, Internet software, and building simple web sites. Results from July 1997 show nearly 700 unique visitors per week, from 60 different countries. Experiences from this workshop have formed the basis of more advanced ones on building web-based courses.

Introduction

The Vanderbilt University Center for Innovation in Engineering Education (CIEE) investigates and implements new approaches to cost-effective engineering education. We create Internet-delivered courses, experiment with tools to support on-line course authors, evaluate results, and disseminate information.

Our research involves the use of Asynchronous Learning Networks (ALN), a program sponsored by the Alfred P. Sloan Foundation [Mayadas 1997]. An ALN allows a student to learn anywhere and anytime, with information and instruction delivered primarily through the Internet and its applications.

By the summer of 1996, the CIEE had created three complete on-line courses covering basic engineering and management topics [Gale 1996]. At that point we were trying to determine if there was interest for others to learn how to build on-line courses. A grant was secured from the Sloan Foundation to develop a prototype for a future ALN Workshop on building Web-based courses. We report here our observations on building and maintaining a web-based workshop, called the ALN Workshop on Internet Basics (informally known as Internet 101).

The workshop web site is located at http://jrbnt.vuse.vanderbilt.edu/workshops/ .

Creation and Implementation

We started by assessing the current situation: limited time and resources. To minimize development time and costs, we created the hypertext documents and managed the web site using Microsoft FrontPageä , a web authoring and development tool. The FrontPage Explorer allows one to view and organize a web site, while the WYSIWYG (What You See Is What You Get) authoring capabilities of the FrontPage Editor facilitates web page development. Since

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FrontPage commands looked quite similar to the Microsoft Office suite that we use, it did not take us long to learn how to use this program.

We also had no professional graphics artist; therefore, we used Paint Shop Pro, a shareware program which was useful for general artwork and screen captures of programs for tutorials.

After settling the "What tools do we use?" issue, we turned toward our prospective audience, which was relatively unknown. When we previously created web-based courses, our target audience was known: undergraduate and graduate engineering students taking required courses [Gale 1996]. Users who would view this workshop would do so on their own accord, and would certainly have a wide variety of computer knowledge and skills. We decided to form two general user groups: those who knew little about the Internet, and those who knew a fair amount.

For those who knew little about the Internet, we thought of designing a module that discussed the history of the Internet, related terminology, and security issues. For users who had difficulty using e-mail, ftp, or web browsing software, we believed that tutorials on these programs would be useful.

For those who were familiar with the above topics, we had an idea to create a module that discussed search methods on the World Wide Web, and to possibly modify a "build your own web page" laboratory from an introductory engineering class [Gale 1996].

From those general ideas, we created a rough outline that has turned into the current format:

- Part 1. Introduction / Registration / Download Needed Software
- Part 2. All About the Internet
    - So what's this Internet?
    - What else you can do online
    - Internet Security
- Part 3. Internet Software Tutorials
    - Netscape (Web Browser, Mail, Newsreader)
    - Internet Explorer (Browser, Internet Mail, Internet News)
    - Eudora (versions 1.5.4 and 3.0)
    - WinZip
    - File Transfer Protocol (FTP)
        - WS_FTP (Windows)
        - Fetch
        - Command-line

- Part 4. Finding Information on the Internet
- Part 5. Building a Web Site
    - The Barebones of HTML
    - Web Editors: What's Best for You?
    - Designing Your Web Site: Guidelines
    - Web Site Resources

Design Issues

After considering the various parts to be created, we thought about the design of the web site. At first, the two students who created the workshop simply started coding in HTML, without thought to look and feel. These students modified the WS_FTP and HTML tutorials, and completed the remaining tutorials and background information in two weeks.

After being tested by co-workers and friends, the workshop was placed on a CIEE server, and announced on the ALN community mailing list in October 1996; the site was not submitted to any search engine. However, in the coming months, e-mail feedback from worldwide users forced us to consider several issues.

- **Practice what you preach.** For example, under "Designing Your Web Site", we discussed the importance of a consistent look and feel for a site; however, our site certainly didn't look that way. No one had bothered to determine the site's fonts, colors, and backgrounds. The result was that some pages had dark textured backgrounds and small fonts, others had plain white backgrounds with large ones. We finally agreed to use the latter format, and spent a fair amount of time rewriting all web pages to conform.
- **Maximize readability and minimize download time.** Users didn't want to read long pages of confusing and uninteresting text. Nor did they want to wait all day for a graphic to load.
    - First, we shortened the content of each page to prevent continuous scrolling, and rewrote many of the articles from a beginner's perspective -- this is much harder than it seems!
    - We then reduced any large graphic to sixteen colors to minimize the download time and to allow people to view the site with most monitors. Sometimes the image looked poor when we reduced the number of colors; therefore, we would change the monitor's resolution to sixteen colors and make our screen captures.
    - Finally, we tested our site by viewing it from a computer with a 14 inch monitor with the lowest resolution, using a 28.8 modem.
- **Present the user with an "interactive" example, if possible**. Many users had mentioned that case studies or examples were the best learning methods. We modified

more of our tutorials to mirror the WS_FTP tutorial, where the user FTPs to a fictional site and downloads a file. In the process this user learns how to use several of the basic commands in the program. (See Figure 1.)

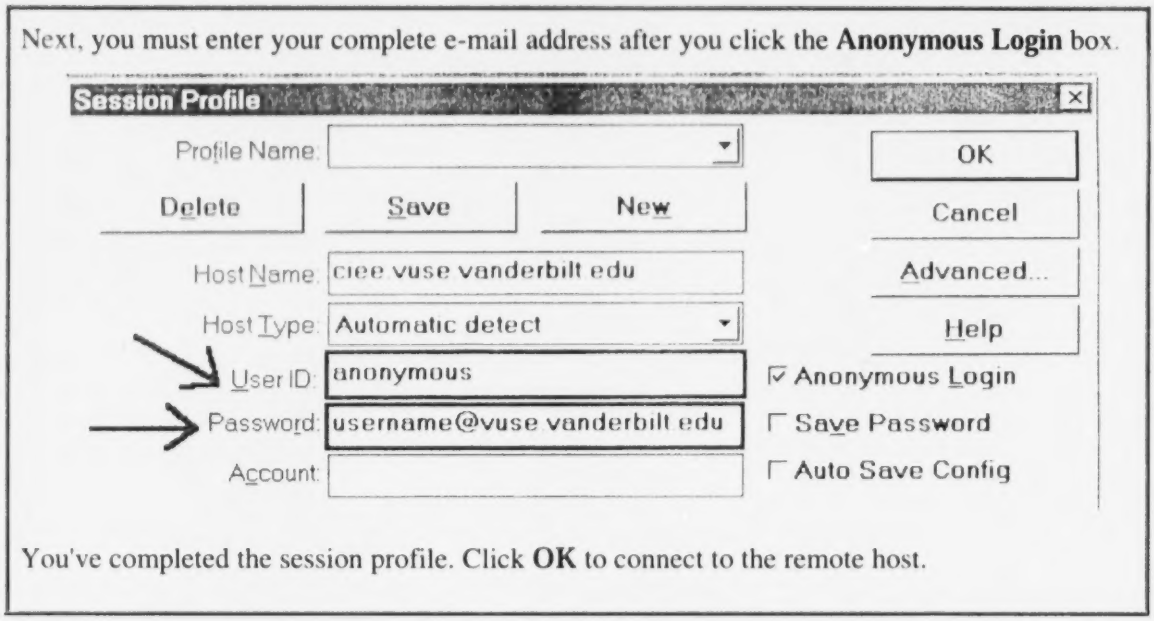

Figure 1: Portion of the WS_FTP tutorial, where one is "stepped through" a sample FTP session. A user clicking anywhere other than OK will stay right on this page.

Results

After the first version had been released in October 1996 and initial feedback came in, no one in the CIEE or the ALN community really paid a great deal of attention to the workshop.

In early 1997, we obtained a copy of Hit List, a program by Marketwave, Inc., that analyzes web site log files. Using the Internet 101 log files, we tabulated some interesting statistics, which are summarized in tables 1-3.

Total Number of Requests	12,078
Total Number of Visits	2,311
Total Number of Visitors	1,712

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Table 1: General results from Monday, January 13, 1997 to Thursday, February 27, 1997 (inclusive)

United States	Canada	France	Australia	Belgium
United Kingdom	Finland	Singapore	Sweden	Netherlands
Iceland	Brazil	New Zealand	Italy	Israel
Hong Kong	Austria	Norway	Switzerland	Poland
Nicaragua	Japan	Lithuania	Spain	Ecuador
Denmark	Ireland	Malaysia	Bermuda	Estonia
Germany	Luxembourg	Mexico	Portugal	Croatia

Table 2: Number of countries that visited the site: in order of most visits, read across.

Group Name	Total Requests
Internet Basics: Eudora Tutorial Main Page	1030
Internet 101	614
Internet Software Tutorials	531
Configuring Eudora	482
The Internet in a Nutshell	439
Checking Email with Eudora	421
Netscape Tutorial Home	380

Eudora Nicknames	370
Sending a Message with Eudora	370
Internet Explorer Tutorial	335

Table 3: Most popular pages from Monday January 13, 1997 to Thursday, February 20, 1997

Note that these results came with little to no advertising on our part! Using the AltaVista search engine, we also determined that 17 sites worldwide had linked the workshop, and specifically to the Eudora tutorial. Why was this?

Feedback

In order to understand why there was apparent interest in portions of the site, we developed a series of feedback forms using FrontPage. There was a general workshop feedback form, registration form, and Internet Software Tutorials form. We will focus on the Tutorial feedback form. Some of the questions asked on this form were:

- What tutorial did you use?
- Was it easy to use (Was it useful?)
- Suggestions for this tutorial, suggestions for other tutorials
- Where did you find this site?

The majority of feedback came from the Eudora tutorial. Here is a sample of what people said about the Eudora tutorial:

- Well done! Inside of 10 minutes, I had the basics. I appreciate your work very much.
- Felt it was a bit basic. I assume most people would come to changing their mail programme once they had been on the web a while and may like a bit more detail.
- Very easy to use. I did not know how to save my password and found out in about 1 minute. Thanks
- Yes since I'm very new with computers I found this very helpful.
- Easy to understand, clear and concise
- Wonderful...finally a place that explains a little about Eudora!!
- I have been a Eudora user for several months, and I picked up a couple of shortcuts looking at this. Thanks.

- Great tutorials! The Eudora tutorial was simple enough not to scare the newbies, and broad enough to get them up to speed with a minimum of fuss. The illustrations were a bit slow to load here in middle-of-nowhere rural Idaho, but they were exactly appropriate.
- I'd say I already knew about 80% by picking it up trial and error. But this was great. It was easy to follow, makes me feel much more confident that I actually understand and that extra 20% is sure going to be nice!

Suggestions for improvement to the Eudora tutorial:

- How to mail multiple recipients at the same time would have been helpful!
- Explain how to install the program after downloading
- More detail, thanks!!
- Information about attachments
- I have a Mac, would have liked specifics to it.
- Could be more in-depth

Table 4 lists some of the 96 occupations of those who used Internet 101. Note that users from all walks of life are listed there.

School Principal	Entertainer	Programmer Analyst	Banking	Nurse
Records Manager	Housewife	Church Administrator	Student	Retired
Bicycle Tour Director	Attorney	Benefits Coordinator	T'ai Chi Teacher	Systems Analyst
Accountant	Journalist	Office Furniture Sales	Financial Consultant	Software Trainer
Manufacturer	Pilot	GM Auto Worker	Physician	Marketer
Canadian Armed Forces chef	Writer	Tax analyst	Electrician	Waitress

Table 4: Occupations of Internet 101 users.

We have visited the Eudora web site and found links to sites with Eudora resources. We emailed the site managers and had our site linked there. Also, we posted a message on relevant Eudora newsgroups and asked for feedback. This started to attract more visitors to our site.

In the next month, statistics increased dramatically (see Table 5). This was after submitting the Eudora Tutorial site to Yahoo, and Internet 101 to AltaVista. As of July 16, 1997, we had users from 60 countries on 6 continents. The Eudora tutorial has nearly reached 5,000 visitors, and Internet 101 in general has reached nearly 2,000.

Total Number of Requests	52,328
Total Number of Visits	9,344
Total Number of Visitors	7,042

Table 5: General results from Monday, January 13, 1997 to Wednesday, July 16, 1997 (inclusive)

Modification

From this feedback, we added new tutorials and revised incorrect or unclear information. Information comes to us from one or two feedback entries per day and the occasional email. Information on the Netscape and Internet Explorer modules were upgraded to the latest version, and sections on creating signatures, attachments, and mailboxes were added to the Eudora tutorial. We keep the tutorials section updated as often as possible, and have added command-line FTP, Fetch, and WinZip to the tutorials list.

We haven't worked with other workshop sections in great detail, since we want to focus on the sections that are used most often.

Future Plans

Many users have written requesting copies of the Internet 101 material, or permission to add our URL to their site. At the end of July, 1997, we started to sell the complete workshop for users who wished to customize the material. Early sales have been promising – our first sale came shortly after the order form was placed on-line!

Other plans are to expand the number of available tutorials, and to provide more in-depth information for those who desire it.

This prototype workshop was used as a readiness module for an expanded workshop on building ALN courses. This new workshop was offered as part of the Third International Conference on Asynchronous Learning Networks from August – October, 1997.

Conclusion

The workshops that were created in the summer of 1996 have become more popular than we had expected. Starting with a rough outline, we created a series of modules to support users who want to learn the fundamentals of the Internet and software used on it. We also included information and examples of building basic web sites.

Analyzing results in early 1997 showed that many people had found the workshop and were linking the site to their own. Placing feedback forms in several areas of the workshop helped fine-tune our materials (in many cases, add more information) to satisfy our users. We have used this workshop as a basis for advanced workshops on building web based courses.

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